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December 15, 1999

Ms. Charlene Rainville  
Regional Grassland Exchange Program Coordinator  
Douglas Ranger District–Thunder Basin NG  
2250 East Richards Street  
Douglas, WY 82633

Dear Ms. Rainville:

This is in response to your November 30, 1999 (received December 6) request for information on locatable mineral resources in a land exchange proposal in which Wayne and Stacy White, of Scenic, South Dakota, have offered certain non-Federal lands within the Nebraska National Forest in exchange for Federal lands also within the Nebraska National Forest.

In accordance with the working agreement under Public Law 86-509, we are providing you with a report on the locatable mineral resources on the lands described in "Exhibits A and B", included with your request. These lands comprise 1824.85 acres in Pennington County, South Dakota.

Sincerely yours,

Anna B. Wilson, Geologist  
Mineral Resources Program, Central Region

Copies:       W.C. Day  
                  E.A. duBray

LOCATABLE MINERAL REPORT FOR THE  
WAYNE AND STACY WHITE EXCHANGE OFFER,  
BUFFALO GAP NATIONAL GRASSLAND,  
NEBRASKA NATIONAL FOREST,  
PENNINGTON COUNTY, SOUTH DAKOTA

By  
Anna B. Wilson  
U.S. Geological Survey

December 15, 1999

*The following report is based on information contained in USGS mineral resource and commodity files, mineral information databases (MRDS and MAS), and on reports and maps available in the USGS library. These data are occasionally augmented with unpublished documents, personal communications, and professional experiences. No field studies or on-site visits were performed in preparing this report. Emphasis is primarily on locatable mineral resources. Leasable and salable resources are covered only if they appear in the above documents. Mineral resource assessments are subjective: the opinions expressed herein are entirely those of the author.*

For the legal location description of lands considered for exchange, refer to Exhibits A and B in Attachment A. Attachment B is a map showing the location of parcels.

**White Property**

(Wall 1:100,000 quadrangle)

NE of Scenic: (Scenic 1:24,000 quadrangle)

Parcel includes the stratigraphic section from Upper Cretaceous Pierre Shale (“Interior zone”, of local usage), to Oligocene Chadron and Brule Formations and, at the northeastern corner, Quaternary eolian sand (King and Raymond, 1971; Raymond and King, 1974c, 1976; Martin and others, in press). No mines or prospects are known in the vicinity (USGS, 1999a, b). Locally, Chadron and Brule Formations may contain clay. Eolian sand is potentially valuable as a sand commodity.

In Badlands N.P.: (Sheep Mountain Table 1:24,000 quadrangle)

The parcel in Badlands National Park is almost entirely Quaternary older alluvium with two small exposures of Oligocene Brule Formation (King and Raymond, 1971; Raymond and King, 1974c, 1976; Martin and others, in press). No mines or prospects are known in the vicinity (USGS, 1999a, b). Alluvium may have potential resource potential for sand and gravel.

East of Bouquet: (Bouquet Table 1:24,000 quadrangle)

The parcel east of Bouquet (misabeled “Banquet” on FS base map, Attachment B) is almost entirely covered by older Quaternary alluvium. There are tiny exposures of Oligocene Brule Formation and, immediately west of the parcel, Upper Cretaceous Pierre Shale (Raymond and King, 1974b, 1976; Martin and others, in press). No mines or prospects are known in the vicinity (USGS 1999a, b). Alluvium is a potential sand and gravel resource.

**Federal Property**

(Imlay 1:24,000 quadrangle)

The federal property is Oligocene Brule Formation, overlain to the north and west by older Quaternary alluvium and to the south and east by Quaternary eolian sand. Quaternary landslide deposits are present in the northeast part of the parcel (Raymond and King, 1974a, 1976; Martin and others, in press). No mines or prospects are known in the vicinity (USGS 1999a, b). Locally, Brule Formation may contain clay. Eolian sand is potentially valuable as a sand commodity. Landslide deposits are indicators of unstable ground.

#### REFERENCES CITED:

- King, R.U., and Raymond, W.H., 1971, Geologic map of the Scenic area, Pennington, Shannon, and Custer Counties, South Dakota: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-662, scale 1:31,680.
- Martin, J.E., Sawyer, J.F., and Fahrenbach, M.D., compilers, in press, Geologic map of South Dakota: South Dakota Geological Survey Map, scale 1:500,000.
- Raymond, W.H., and King, R.U., 1974a, Geologic map of the Quinn Table SW and parts of the Quinn Table and Imlay quadrangles, Pennington and Shannon Counties, South Dakota: U.S. Geological Survey Miscellaneous Field Studies Map MF-601, scale 1:24,000.
- Raymond, W.H., and King, R.U., 1974b, Geologic map of the Quinn Table SE and parts of the Quinn Table NE and Bouquet Table quadrangles, Pennington and Shannon Counties, South Dakota: U.S. Geological Survey Miscellaneous Field Studies Map MF-602, scale 1:24,000.
- Raymond, W.H., and King, R.U., 1974c, Geologic map of the Scenic and parts of the Brennan Flat and Sheep Mountain Table quadrangles, Pennington and Shannon Counties, South Dakota: U.S. Geological Survey Miscellaneous Field Studies Map MF-603, scale 1:24,000.
- Raymond, W.H., and King, R.U., 1976, Geologic map of the Badlands National Monument and vicinity, west-central South Dakota: U.S. Geological Survey Miscellaneous Investigations Series Map I-934, scale 1:62,500.
- U.S. Geological Survey, 1999a, Mineral Resource Data System [MRDS: active computer file; data available from U.S. Geological Survey, Mineral Resources Program, Building 20, Denver Federal Center, Denver CO 80225].
- U.S. Geological Survey, 1999b, Minerals Availability System [MAS: active computer file; data available from U.S. Geological Survey, Minerals Information Team (formerly U.S. Bureau of Mines), Building 20, Denver Federal Center, Denver CO 80225].

#### LIST OF ATTACHMENTS:

- A. Exhibits A and B (provided by U.S. Forest Service)
- B. Location of land exchange parcels (provided by U.S. Forest Service)